Operating Instructions

Overvoltage arresters

B63-48, B63-32

Document ID: 33012

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1 About this document

1.1 Function

This operating instructions manual provides all the information you need for mounting, connection and setup as well as important instructions for maintenance and fault rectification. Please read this information before putting the instrument into operation and keep this manual accessible in the immediate vicinity of the device.

1.2 Target group

This operating instructions manual is directed to trained specialist personnel. The contents of this manual should be made available to these personnel and put into practice by them.

1.3 Symbolism used

Information, tip, note
This symbol indicates helpful additional information.

Caution: If this warning is ignored, faults or malfunctions can result.

Warning: If this warning is ignored, injury to persons and/or serious damage to the instrument can result.

Danger: If this warning is ignored, serious injury to persons and/or destruction of the instrument can result.

Ex applications
This symbol indicates special instructions for Ex applications.

- **List**
  The dot set in front indicates a list with no implied sequence.

→ **Action**
This arrow indicates a single action.

1 **Sequence**
Numbers set in front indicate successive steps in a procedure.

Battery disposal
This symbol indicates special information about the disposal of batteries and accumulators.

2 For your safety

2.1 Authorised personnel

All operations described in this operating instructions manual must be carried out only by trained specialist personnel authorised by the plant operator.

During work on and with the device the required personal protective equipment must always be worn.

2.2 Appropriate use

B63-48, B63-32 are overvoltage arresters in two-wire technology for installation in VEGA level and pressure sensors.

You can find detailed information on the application range in chapter "*Product description*".

2.3 Warning about incorrect use

Inappropriate or incorrect use of the instrument can give rise to application-specific hazards, e.g. vessel overfill or damage to system components through incorrect mounting or adjustment.

2.4 General safety instructions

This is a high-tech instrument requiring the strict observance of standard regulations and guidelines. The user must take note of the safety instructions in this operating instructions manual, the country-specific installation standards as well as all prevailing safety regulations and accident prevention rules.

The instrument must only be operated in a technically flawless and reliable condition. The operator is responsible for trouble-free operation of the instrument.

During the entire duration of use, the user is obliged to determine the compliance of the necessary occupational safety measures with the current valid rules and regulations and also take note of new regulations.

2.5 Safety label on the instrument

The safety approval markings and safety tips on the device must be observed.

2.6 CE conformity

This device fulfills the legal requirements of the applicable EC guidelines. By attaching the CE mark, VEGA provides a confirmation of successful testing. You can find the CE conformity declaration in the download area of "www.vega.com".

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2.7 Safety instructions for Ex areas

Please note the Ex-specific safety information for installation and operation in Ex areas. These safety instructions are part of the operating instructions manual and come with the Ex-approved instruments.

2.8 Environmental instructions

Protection of the environment is one of our most important duties. That is why we have introduced an environment management system with the goal of continuously improving company environmental protection. The environment management system is certified according to DIN EN ISO 14001.

Please help us fulfill this obligation by observing the environmental instructions in this manual:

- Chapter "*Packaging, transport and storage*"
- Chapter "*Disposal*"

3 Product description

3.1 Configuration

Scope of delivery

The scope of delivery encompasses:

- Overvoltage arrester B63-48, B63-32
- Documentation
  - this operating instructions manual
  - Ex specific safety instructions and, if necessary, further certificates

Constituent parts

The following illustration shows the structure of B63-48, B63-32:

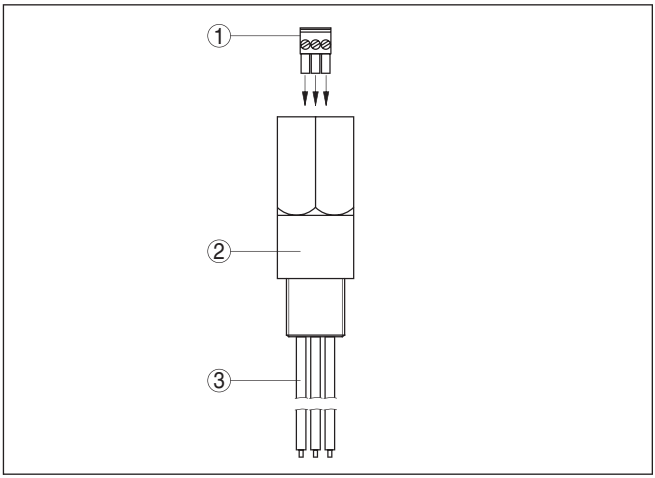

Fig. 1: Structure of B63-48, B63-32

1 Terminals for the signal cable input (unprotected side)
2 B63-48, B63-32
3 Signal cable output to the sensor (protected side)

3.2 Principle of operation

Application area

The overvoltage arresters B63-48, B63-32 are completely enclosed in a stainless steel housing. They can be used for VEGA level and pressure sensors in two-wire technology.

- Type B63-48 for 4 … 20 mA/HART sensors
- Type B63-32 for Profibus PA and Foundation Fieldbus sensors

Functional principle

B63-48, B63-32 overvoltage arresters reduce any voltage surges that may reach the signal cables to a harmless level. The devices contain voltage-limiting components as well as gas conductors for bleeding off impulses of up to 10 kA to ground.

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3.3 Packaging, transport and storage

Packaging

Your instrument was protected by packaging during transport. Its capacity to handle normal loads during transport is assured by a test following ISO 4180.

The packaging of standard instruments consists of environment-friendly, recyclable cardboard. For special versions, PE foam or PE foil is also used. Dispose of the packaging material via specialised recycling companies.

Transport

Transport must be carried out under consideration of the notes on the transport packaging. Nonobservance of these instructions can cause damage to the device.

Transport inspection

The delivery must be checked for completeness and possible transit damage immediately at receipt. Ascertained transit damage or concealed defects must be appropriately dealt with.

Storage

Up to the time of installation, the packages must be left closed and stored according to the orientation and storage markings on the outside.

Unless otherwise indicated, the packages must be stored only under the following conditions:

- Not in the open
- Dry and dust free
- Not exposed to corrosive media
- Protected against solar radiation
- Avoiding mechanical shock and vibration

Storage and transport temperature

- Storage and transport temperature see chapter "*Supplement - Technical data - Ambient conditions*"
- Relative humidity 20 … 85 %

4 Instructions for installation

B63-48, B63-32 overvoltage arresters are screwed into the position of the cable gland on the sensor housing. The cable gland of the sensor is screwed into the overvoltage arrester. No further assembly is necessary.

Caution:
B63-48, B63-32 overvoltage arresters must not be used in a corrosive environment.

The thread on the overvoltage arrester must correspond to the thread on the sensor housing. In order to maintain the enclosure rating of the sensor, PTFE gasket strip must be used. First of all, screw in by hand; if necessary, use grease and finally tighten with a ½ turn with a SW 27 wrench.

5 Connecting to power supply

5.1 Preparing the connection

Note safety instructions

Always keep in mind the following safety instructions:

- Connect only in the complete absence of line voltage

Danger:
The stainless steel housing of B63-48, B63-32 has no electrical function and therefore provides no internal or external connection to ground or potential equalization.

The plant operator is responsible for ensuring an adequate connection, for example within the context of protective grounding, depending on the installation and protection rating.

The B63-48, B63-32 exhibit a voltage resistance of 0.5 kV for one minute in the signal circuit with respect to the stainless steel housing, but not with respect to the green/yellow cable in the sensor circuit. This must be taken into account for the electrical installation.

Before starting setup make sure that the power supply corresponds to the specifications on the type label.

Take note of safety instructions for Ex applications

In hazardous areas you must take note of the respective regulations, conformity and type approval certificates of the sensors and power supply units.

5.2 Connection procedure

Proceed as follows:

1. Unscrew housing cover of the sensor
2. If a display and adjustment module is present, remove it according to the operating instructions of the sensor
3. Unscrew the cable gland
4. Push the connection cables through the cable gland into the sensor
5. Screw B63-48, B63-32 into the opening of the cable gland according to the description under "*Mounting instructions*"
6. Shorten the connection cables of B63-48, B63-32 to the suitable length, strip off the wire ends approx. 1 cm (0.4 in)

Note:
To ensure an effective overvoltage protection, the connection cables should be as short as possible. Unnecessary cable should not be wound up and placed inside the sensor housing. This could influence the protective function of B63-48, B63-32.

7. Connect wire ends red and black according to chapter "*Wiring plan*" and operating instructions of the respective sensor
8. Connect wire end green/yellow to the internal ground terminal in the sensor housing, connect external ground terminal to potential equalisation
9. Pull out terminal block inside B63-48, B63-32 with pliers

10. Push signal cables and screen through the cable gland and connect according to chapter "*Wiring plan*" to the terminals
11. Check all cable connections, especially the ground connection, to make sure they are tightened sufficiently
12. Insert terminal block into its position by using the pliers. A mechanical coding ensures the correct position
13. Screw cable gland into the thread of B63-48, B63-32, tighten compression nut. The seal ring must completely encircle the cable

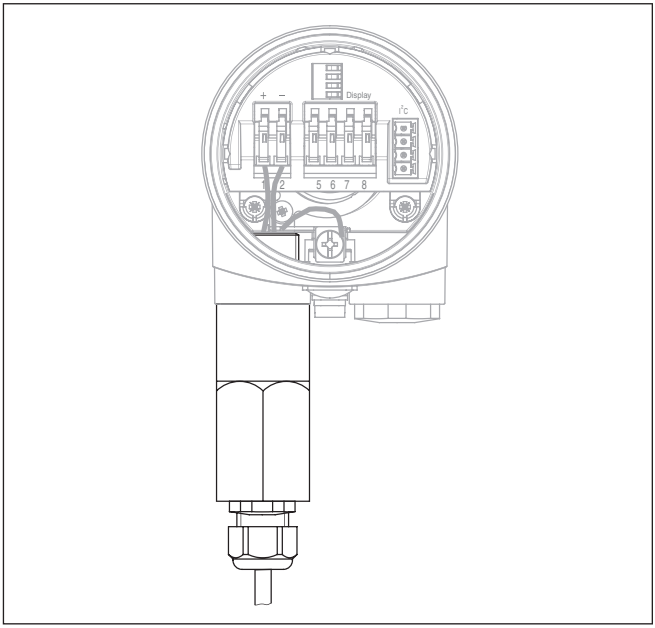

Fig. 2: Overvoltage protection B63-48, B63-32 after installation and connection

14. Screw the housing cover back on

The electrical connection is hence finished.

5.3 Wiring plan

Wiring plan

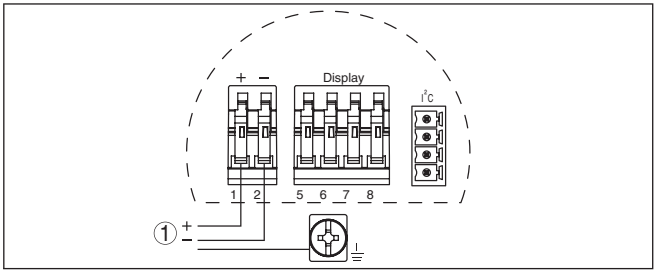

Fig. 3: Wiring plan, sensor side, example single chamber housing

1 Connection cables of B63-48, B63-32, wire assignment see chart

Terminals sensor	Wire colour/Polarity
1	Red (+)
2	Black (-)
Ground terminal	Green/yellow

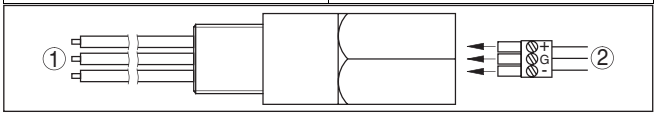

Fig. 4: Wiring plan B63-48, B63-32-side

1 To the sensor
2 Signal circuit

6 Maintenance and fault rectification

6.1 Maintenance

If the instrument is used properly, no special maintenance is required in normal operation.

To ensure the function of B63-48, B63-32, we recommend a regular visual check at intervals of max. 1 year for:

- secure mounting
- mechanical damage or corrosion
- worn or otherwise damaged cables
- correct and clearly marked cable connections

6.2 Rectify faults

Reaction when malfunctions occur

The operator of the system is responsible for taking suitable measures to rectify faults.

Fault rectification

The first measure to be taken is to check the input/output signal as well as the power supply. In many cases, the causes can be determined and faults can be quickly rectified.

On-site repair of B63-48, B63-32 is not possible.

24 hour service hotline

Should these measures not be successful, please call in urgent cases the VEGA service hotline under the phone no. **+49 1805 858550**.

The hotline is available to you 7 days a week round-the-clock. Since we offer this service world-wide, the support is only available in the English language. The service is free of charge, only the standard telephone costs will be charged.

Reaction after fault rectification

Depending on the reason for the fault and the measures taken, the steps described in chapter "*Set up*" may have to be carried out again.

6.3 Instrument repair

If a repair is necessary, please proceed as follows:

You can download a return form (23 KB) from our Internet homepage www.vega.com under: "*Downloads - Forms and certificates - Repair form*".

By doing this you help us carry out the repair quickly and without having to call back for needed information.

- Print and fill out one form per instrument
- Clean the instrument and pack it damage-proof
- Attach the completed form and, if need be, also a safety data sheet outside on the packaging
- Please ask the agency serving you for the address of your return shipment. You can find the respective contact data on our website www.vega.com under: "*Company - VEGA worldwide*"

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7 Dismounting

7.1 Dismounting steps

Take note of chapters "*Mounting*" and "*Connecting to power supply*" and carry out the listed steps in reverse order.

7.2 Disposal

The instrument consists of materials which can be recycled by specialised recycling companies. We use recyclable materials and have designed the parts to be easily separable.

WEEE directive 2002/96/EG

This instrument is not subject to the WEEE directive 2002/96/EG and the respective national laws. Pass the instrument directly on to a specialised recycling company and do not use the municipal collecting points. These may be used only for privately used products according to the WEEE directive.

Correct disposal avoids negative effects on humans and the environment and ensures recycling of useful raw materials.

Materials: see chapter "*Technical data*"

If you have no way to dispose of the old instrument properly, please contact us concerning return and disposal.

8 Supplement

8.1 Technical data

General data	
Version	The device can be screwed into the sensor housing instead of the cable gland
Housing material	316Ti
Weight approx.	175 g (0.385 lbs)

Electrical characteristics[1)]	
Leakage current at nominal voltage	< 10 µA
Internal resistance	1 Ω
Nominal leakage current	< 10 kA (8/20 µs)
Band width	1 MHz

Signal circuit	
Nominal voltage/Signal	
– B63-48	9 … 48 V DC/4 … 20 mA/HART
– B63-32	9 … V DC, Profibus PA, Foundation Fieldbus
Screw terminals for cable cross-section	< 1 mm^2 (AWG 18)

Sensor circuit	
Number of wires	two signal cables, one ground cable
Wire cross-section	1.5 mm^2 (AWG 14)
Cable length	250 mm (9.843 in)

Ambient conditions	
Ambient temperature	-40 … +85 °C (-40 … +185 °F)
Storage and transport temperature	-40 … +85 °C (-40 … +185 °F)
Moisture	5 … +95 °% (non-condensing)

Electrical protective measures	
Protection in assembled and connected state	IP 66

Approvals

Instruments with approvals can have different technical data depending on the version.

For that reason the associated approval documents of these instruments have to be carefully noted. They are part of the delivery or can be downloaded under www.vega.com via "*VEGA Tools*" and "*serial number search*" as well as via "*Downloads*" and "*Approvals*".

1) Reference temperature 25 °C (77 °F).

8.2 Dimensions

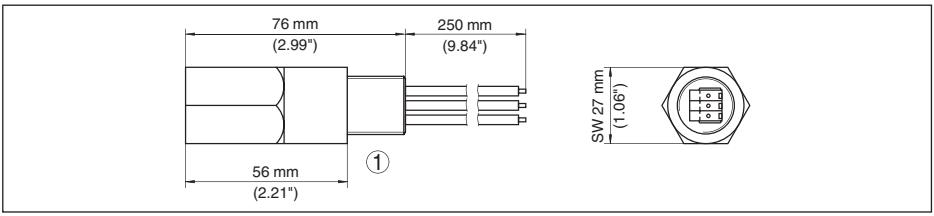

Fig. 5: Dimensions B63-48, B63-32

1 Thread M20 x 1.5 or ½ NPT, depending on order specification

Printing date:

All statements concerning scope of delivery, application, practical use and operating conditions of the sensors and processing systems correspond to the information available at the time of printing.
Subject to change without prior notice

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